Shortroping 202

Advanced Rope Techniques for the Aspiring Excellent Leader
(2020 Update)

Version 1.2

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***WARNING**: Failure to use any or all of the techniques or systems explained or illustrated in this article in an appropriate manner could result in property damage, injury or death. Expert instruction and constant practice are mandatory. This is not a stand alone instructional article. It is designed to accompany professional instruction and extensive practice under supervision.*

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Introduction

In the article “Shortroping 100” the method for shortening a rope around your body using locked off coils was introduced. Little indication of when and where this should actually be done was given. By itself this did little to give someone an understanding of what shortroping actually is.

To the uninitiated, the very concept of shortroping sounds dangerous and to be honest, in the hands of an inexperienced practitioner, it very well may be. Traveling in technical terrain while lashed to your partner(s) in close proximity sounds a lot like a death wish. If one person falls the whole group falls. The person with little background in shortroping might think it is better to unrope and solo the climb. In fact, this is far from the truth, but only if you know what you are doing.

What is shortroping? In a nutshell it is the transitional series of techniques that bridges the gap between hiking / unroped scrambling and fifth class technical climbing. It is primarily an alpine climbing arsenal of techniques for moving rapidly and safely in mountainous terrain. It requires the utmost in situational awareness and attention to changing conditions to employ properly. The leader who is shortroping an individual or group cannot afford a moments inattention. Just as with belayed climbing, the leader must catch a slip the moment it occurs for the technique to be truly effective. It is perhaps the most difficult series of rope techniques to master and practitioners must constantly hone their skills over a lifetime. Shortroping is not the same as “simul-climbing” nor is it roped soloing, although at times it may appear so. It is not a death wish and it is not easy to learn. It cannot be learned from an article or book. Once mastered however, it is a powerful tool.

Since it is such an advanced technique it is not recommended for beginners or intermediate climbers to begin lead climbing employing shortroping techniques until they have a significant number of mentored alpine climbs under their belt. These climbs should be under the tutelage of someone well versed in these techniques so that their education can properly begin as a follower. When the time comes this will make the transition to leading using the full spectrum of skills much more natural. In addition, when first using these skills as a leader it is recommended that the new leader lead no more than one partner on rock and two partners on snow / ice. Trying to catch three people hurtling down a slope if the technique has been misapplied is a hopeless task.

What follows is an introduction to where shortroping fits into the big picture of mountaineering so that we might better understand why it is the mainstay of the professional guide and the excellent amateur leader. The focus in this article is on shortroping for club leaders, aspiring guides and other highly skilled climbers who commonly lead less experienced trip participants.

The Continuum Table		
Terrain	**Action Set**	**Common Techniques**
Basic Trails or Easy Off-Trail or Easy Scrambling	**Foundation Skills** (used on all terrain types below)	observing / communicating pacing routefinding track setting / step kicking modeling spotting instructing coaching rope not used
Easy to Moderate Scrambling or Simple Technical	**Passive Shortroping** (rope shows direction, gives confidence to followers)	moving together modeling / coaching / instructing spotting rope kept short
Variable or Exposed or Difficult Scrambling or Short Simple Technical	**Active Shortroping** (rope checks slips, catches falls for followers)	moving independently (one at a time) modeling / coaching / instructing spotting leader often not belayed body braces and belays direct belays (terrain / natural anchors) rope length variable / often short
Variable or Exposed or Short Difficult Technical	**Short Pitching** (rope checks slips, catches falls for followers and belays leader)	moving independently (one at a time) modeling / coaching / instructing leader belayed body braces and belays less common leader uses occasional protection direct belays (terrain / natural anchors) rope length variable / often not full length
Exposed or Difficult Rock or Difficult Snow or Difficult Ice	**5th Class Techniques** (rope catches falls for followers and belays leader)	moving independently (one at a time) modeling / coaching / instructing leader belayed leader uses protection belays (natural and artificial) rope usually used full length
Glaciated Terrain	**Glacier Techniques** (rope checks slips and arrests crevasse falls)	moving together leader not belayed rope used full length (often with rescue coil)
Continuous or Exposed or Glaciated Slope	**Simultaneous-Climbing** (rope catches falls in dynamic, non-anchored fashion)	party members very experienced moving together for speed or crevasses leader not belayed leader places running protection rope usually used full length

Table 1. A simplified catalogue of "The Continuum" of group management skills as applied in varying types and difficulty of terrain. The choice of when and how the rope is used is not based on rules but rather guidelines.

The Continuum

In order to understand the concept of shortroping we need to look at the continuum of techniques that are used to manage people on increasingly technical terrain. We have to understand that the range of techniques we employ must accommodate a range of conditions and a broad array of climber experience levels. Most importantly the art of shortroping requires a high level of skill and judgment in determining the probability of a slip or fall and the consequences if one occurs. This is risk management at its highest level. Shortroping is a study in advanced risk / benefit analysis.

> *The critical question: "What is the probability of a slip or fall and what are the consequences if one occurs?"*

As stated in the introduction, a new leader or casual weekend climber is not likely to have the level of experience and sense of situational awareness required to make the decisions required without prior practice with this type of decision-making. As a result, the less experienced climber will initially have to adhere to a lower level "rule - based" structure that will have the party belaying and using fifth class techniques more often than they may be required, even occasionally on 3rd and 4th class terrain. Without the ability to read terrain and a broad experience base this is the reality. Even deciding when to actually use the rope is highly dependent on the technical skills of the party and its members as the highly simplified table below would suggest.

When deciding which techniques to employ we ask ourselves, "How technical is the terrain?" Are we walking on a simple trail (1st Class), hiking on uneven terrain (2nd class), scrambling on easy ground (3rd class), scrambling on more complex or exposed ground (4th class), climbing technical terrain (5th class) or aid climbing (6th class)? We have to evaluate the existing conditions and terrain type. Is it rock, snow or ice; wet or dry; easy or hard; solid or loose; good footing or poor; exposed or benign; hot or cold; foul weather or fine. And the list goes on.

We have to consider the technical expertise of the climbers in the group. Do we have beginners or are we in a group of experts each of whom could lead any section of the trip? Or perhaps we are somewhere in between with a mixed group of participants.

When Is The Rope Actively Used?				
	Beginner	**Intermediate**	**Advanced**	**Expert**
1st Class	Almost Never	Almost Never	Almost Never	Almost Never
2nd Class	Very Rare	Almost Never	Almost Never	Almost Never
3rd Class	Often	Optional	Rare	Rare
4th Class	Usually	Often	Optional	Rare
5th Class	Almost Always	Usually	Usually except on easy 5th class	Usually except on easy to mid 5th class
6th Class	Almost Always	Almost Always	Almost Always	Almost Always

Table 2. Rope use as a function of difficulty of climbing (class) and experience level of participants. As mentioned in Table 1, for the excellent leader or professional guide, the choice of when and how the rope is used is not based on rules but rather guidelines. Notice that the terms always and never are not absolute.

Foundation Skills

Underpinning the entire continuum of skills in table 1 is a foundation set of skills that the excellent mountain leader applies to almost every situation regardless of whether the rope is employed or not. In less technical situations the foundation skills are the basis of group management and form a significant part of the risk management and hazard mitigation strategy.

Verbal Foundation Skills

Observation and Communication

Although this is an article on the hard skill of shortroping, its application relies heavily on soft skills and observation of group performance. The excellent leader mounts their head on a swivel and constantly strives for the elusive state of "situational awareness" in which the leader consciously and even subconsciously knows and feels when something changes. In regard to the group this includes trying to read body language and sense when a group or one of its members is hot, cold, tired, hungry, excited, scared among other things. Is the group handling the terrain well or are they having difficulty? Do they seem at ease with the terrain or are they moving awkwardly?

Excellent leaders and professional guides have honed their people observation skills to the point where they may know almost as much about a group member's state as the individual does themselves. This comes from years of constant observation.

As much as you can read the body language of people in a group you also send messages to the members of a party that you are leading. When you move with confidence and behave in a manner that implies you are comfortable with a situation this is often conveyed to the group. When you act nervous and in a manner that is out of your normal character this can be picked up by the group. If you recognize this you can use it to your advantage to influence the members of a group one way or another. For example, if I know I will have to make a decision to turn back due to unsafe conditions I often send non-verbal (and verbal) signals to my group for some time before I stop and announce that we will have to turn back. I use every opportunity to draw unsettling observations to their attention and I may make my discomfort with the situation "physically" obvious. This makes the inevitable decision less of a shock when we suddenly have to change direction.

An experienced leader can even tune in to the sounds that a group makes as it moves across terrain. If the pace is appropriate the members of the group should be able to talk reasonably comfortably while travelling. The sound of talking blends in with the sound of the footfalls and makes what becomes a characteristic "sound" for the group in that terrain. Any change in that sound should signal a quick swivel of the head to see if anything has changed.

Even when the group is not talking they often make a kind of group sound. An astute leader can often notice when a single person drops back to tie a shoe-lace. Although this is not always possible, this level of awareness is something to strive for. Don't forget to monitor the environmental conditions and changing terrain with the same vigour.

Even if the leader cannot read a person's physical or psychological state in a given situation they use another vital tool in their kit. Communication is used in concert with observation to gauge the well-being, performance and comfort level of group members as the day wears on and conditions change. Communication is a two way street in which openness is encouraged. If you notice a challenging situation materializing you have to decide which tool you have in your kit to deal with it. Does it require people management skills or does it require changing the way in which you manage the terrain. Is the rope required? Is it time to verbally confirm the comfort level of the people in the group? Is it time for a short break to have a snack, some water and some discussion?

As the terrain changes the verbal techniques you use to manage a situation may change as well. The wise leader also gauges what type or style of verbal communication is required based on the skill level of the participant. With participants who are beginners you tend to use more instructional technique whereas with the advanced participant you tend to encourage and share information while seldom actually instructing.

How Verbal Foundation Skills May Be Used				
	Beginner	**Intermediate**	**Advanced**	**Expert**
1st Class	Instructing / Encouraging	Communicating	Communicating	Communicating
2nd Class	Instructing / Encouraging	Communicating	Communicating	Communicating
3rd Class	Instructing / Encouraging	Communicating / Coaching	Communicating/ Cooperating	Communicating/ Cooperating
4th Class	Instructing / Encouraging	Communicating / Coaching	Communicating/ Cooperating	Communicating/ Cooperating
5th Class	Instructing / Encouraging	Communicating / Coaching / Instructing	Communicating / Encouraging / Cooperating	Communicating / Encouraging / Cooperating
6th Class		Instructing / Encouraging	Communicating / Encouraging / Cooperating	Communicating / Encouraging / Cooperating

Table 3. Situational use of verbal foundation skills varies with difficulty of terrain and experience level of participants.

The difference between Coaching and Teaching

The main difference between coaching and teaching is that coaching is a multi-dimensional, cyclical activity that aims to bring out a particular aspect from the subject who is being coached, where teaching is more of a straight line, step-by-step approach comprised mostly of one-way communication, with the goal of presenting brand new, never-before-learned information.

(from https://www.idtech.com/blog/coaching-vs-teaching)

Instructing

Communication in the mountain realm has many roles apart from the sharing of information. One use of communication skills is to actually instruct a participant in the use of a technique, tool or skill. Whenever possible try not to rush in presenting the basic tenets necessary for completing the task being instructed. Position the participant(s) in such a many that they can see and hear you without obstruction or impediment. Have the group stand with their backs to the sun if possible and if you are able take the time to position the entire group for a good line of sight if a physical skill is being demonstrated. This has to be tempered with time constraints if the instruction is happening during a long alpine climb for example.

If the group is larger, decide if having the group a bit farther back provides everyone with a better view than having everyone crowded in close. Compose your thoughts before speaking if you can. If you are instructing in a dynamic outdoor setting try to anticipate where and when you will stop to optimize what you are trying to achieve.

Decide what style you want to use and don't use the same style for everyone and every situation. For example, the way in which an elementary school teacher would instruct first grade students would differ from the way a university professor would address a group of graduate students. Gauge your groups maturity and level of understanding before you open your mouth. Don't be condescending or treat people like they don't known anything if they already have significant skills. One sure way to have adults ignore your instruction is to treat them like children. Each situation is different and may require a different approach.

The way in which you use your voice will also vary in different instructional situations. With adult groups it is best not to yell at people if at all possible. If your normal speech pattern is loud, try to turn down the volume a bit when speaking to a group close in. Positioning your group appropriately may help avoid the perception that you are yelling at them. Avoid windy spots for this reason. If you are normally a fast talker try to speak more slowly and succinctly. Project your voice appropriately and try not to turn your head away from the group when talking or giving instruction. If you are normally soft spoken try to turn up the volume a bit when emphasizing important points. If your point is very important you may have to ask everyone to pay attention for a moment before presenting your information. This may require that you show a little of the assertive side of your personality. Try not to be a "commander" too often.

If presenting a new skill that has elements that are foreign to the group consider using analogies to provide a mental image for participants. Pick an analogy that the group members may be able to relate to. For example, when teaching skiing you may not want to spend fifteen minutes trying to explain "inclination" when all you have to do is say, "It is much like leaning into a corner when you are riding a bicycle." You should also use modeling which will be discussed under the heading of technical terrain skills.

Try to find simple ways to explain what behaviour or skill you are trying to get across. Instead of always saying things like, “You need to adopt a more forward stance and shift your center of gravity more toward the front of the center of balance of your ski,” you may simply state, “try to keep your hands out front where you can see them and feel your shins lightly pressing against the front of your boots.” Keep it simple.

In instructing it is sometimes good to wait for what is often described as the “teachable moment” before presenting a skill. This amounts to waiting for the time when a participant will be most receptive to learning a particular skill or concept. It is not very helpful to try to explain to someone how to crampon on low angle ice at breakfast at 5:00 AM. If you wait until you have your crampons on and can actually see that a participant is beginning to experience a bit of a problem you have now arrived at a teachable moment. This is when the person has already begun to experience the problem for which you have the remedy. Because of their problem they may be more receptive to hearing what you have to say. Teachable moments can also arise without people having experienced difficulty. For example, people may experience a gradual increase in their awareness about a particular subject and be hungry to learn. Capitalize on this when you can.

Coaching

Coaching is a little different from instructing but their principles overlap. The coach often tries to elevate the skill level of someone who already has the foundations of a skill in place. When coaching, you must once again decide on what voice and approach you are going to use. Many of the principles of instruction apply.

Often you are simply reinforcing desired behaviours, gently nudging a participant away from less desirable actions and enhancing and expanding the existing skill set. Coaching often involves close observation while the participant undertakes an activity followed by immediate or contemporaneous feedback. Learning will be enhanced if the person can be allowed an opportunity to repeat the skill several times until approaching a higher level of mastery. Follow this up with review at a later time if appropriate.

If applicable you can have people use various forms of imagery in which participants visualize what proper application of a technique mentally feels like. An individual can be guided through an exercise in which they learn how a perfectly executed movement looks and feels without having mastered the technique itself yet. Even when traveling, a skill that has just been practiced can be verbally reviewed to help imbed a principle.

Be careful that you don’t over - coach or try to correct things that don’t really have to be corrected. For example, the world of skiing has gone through many revolutions in regard to what is the best style and even today there are different schools of skiing. If someone skis well using a different style of skiing than your own, is it really necessary to modify their technique simply to fall in line with your idea of what the ideal skier looks like? Probably not.

Encouraging

Both instructing and coaching rely heavily on positive encouragement. Even during normal group travel it is helpful for morale to encourage the group when appropriate. If the pace of the group is good, be sure to reinforce the fact that everyone is moving well and the group is on schedule. A beginner seconding a technical pitch as well as an experienced leader leading a climb can benefit from positive encouragement while climbing and just after finishing a trying section. Climbing is very much a mental game and being in a good mental state enhances physical performance to a significant degree.

Modeling

When leading a group with individuals of lesser experience or ability it may still be appropriate to travel on certain segments of technical terrain without using a rope. You may begin by doing a quick check to be sure that everyone is comfortable traveling without the security of the rope.

The first person up may wish to climb the section and model the manner in which it should be ascended. Avoid demonstrating a skill in the incorrect manner. Show the very thing that you want everyone else to do. It is best to demonstrate a skill in as technically correct a fashion as possible so that participants can visualize the proper technique. Key holds may be pointed out and movement skills demonstrated slowly and fluidly. The leader may want to slightly exaggerate the skill performance to be sure that it is visually evident. All the while the leader may be verbalizing tips regarding movement, balance, friction, points of contact, opposition or whatever may be appropriate to the terrain. This may be the teachable moment discussed earlier in the instructing section.

Modeling can be incorporated into roped climbing as well. Modeling may be all that is required to assist a group to ascend the terrain in a safe and simple manner.

Cooperating

The final verbal foundation skills that we will discuss are cooperating and sharing. A good leader can help raise the self esteem of a group and in some cases, enhance good decision-making by including the group in decision-making at the level that is appropriate for the participants involved. Bouncing ideas off the group and allowing everyone to have a say can be helpful in exploring the range of possible options.

Inclusion can lead to problems in some situations however, and allowing too many opinions, especially ill-informed or widely divergent opinions can lead to a time-wasting phenomenon that some refer to as “paralysis by analysis”. Consensus building and group decision-making can lead to everyone having a sense that they are a valuable participant in an activity but requires more time than an autocratic or dictatorial style. An excellent leader will have to balance where and when to use different decision making processes. Situational leadership and decision making are important subjects in their own right and will be discussed in separate articles.

Physical Foundation Skills

Routefinding

Alongside your communication skills sits your physical skills for moving your group through terrain. The ability to find safe and sensible routes in the mountains is fundamental to safe travel. If you can find logical ways to negotiate terrain the group will be safer and more likely to have confidence in your abilities. The group is more likely to follow you and your directions if they are confident in your routefinding.

In addition, you may be able to delay the use of the rope until it is actually required. Poor routefinding can subject a group to rockfall, icefall, avalanche hazard, treacherous terrain and risk of slips or falls to name a few possibilities. Good routefinding reduces the time you are exposed to hazards and may reduce the amount of time you must travel roped. Roped travel is often more time consuming and tedious than unroped travel.

Good routefinding is, above all else, a product of extensive experience traveling in varied types of terrain and using a vast storehouse of past experiences to anticipate what may lie ahead in terrain that you may never have been in before. It requires constant attention and observation of the geology and geography of a mountain or route.

Plan ahead to get as much information beforehand as reasonable. Guidebooks, maps and local knowledge are three common sources of information. Enroute be willing to scout ahead and figure out a passage while the group has a short break. Capitalize on vantage points and high ground when possible. Above all else, constantly assess and memorize terrain both in front of and behind you. Learn to pick out obvious features that will help you orient yourself to the big terrain picture. Look at things from a distance and imagine what they will look like close up. Look around corners and be open to investigate options.

I am constantly surprised at how little people will observe about their surroundings in the mountains. The mountains are like a book. There is a vast wealth of information available but you must open the book and look at the pages. Looking at the cover does little to tell you about the contents. Look at mountains and glaciers across the valley. You may be there tomorrow and you may not have the same vantage point. Keep looking at your objective when still a long way away from it. This distant perspective may offer you clues to routefinding that may disappear as you get closer.

I often teach people to think of routefinding in terms of three "M" scales. The Macro scale in this context will be used to relate to trying to figure out where on the entire mountain your intended route goes and then memorizing specific terrain features that you will be able to identify when you are in their proximity. This could be anything from a solitary tree to a snow patch, a cliff-band, a colored patch of rock or a distinctive geographic feature.

As you climb you keep the big picture in mind and attempt to track yourself in this picture. Many mountain routes follow natural weaknesses or obvious features or perhaps a series of such features in a complex route. Ridgelines or gullies are examples of obvious features that routes may follow. Glaciated routes may follow lines of least resistance that may present themselves as ramps, bowls or depressions as another example.

The next smaller scale in this context I call the Medium or Meso scale. In the Medium scale, you are trying to think in the rough equivalent to a pitch by pitch type of scale. Where does this next short section or pitch go? Where is the natural line in relation to where I am? Should I be trending one direction or another on this next section? Do I need to go around a corner, along a ledge or just straight up?

On belayed climbing, where is the next belay stance? Does this pitch go generally left, right, straight up? Where is this pitch in the context of the Macro picture?

In the final smallest scale, the Micro scale, we are talking about individual moves. Within the pitch or section, where do my hands and feet go to create a sequence of moves that provide for fluid, compact and energy efficient motion.

While I am thinking about my next move or footstep in the micro scale I cannot lose sight of the medium scale of where this pitch should go within the context of the entire route on the mountain-sized Macro scale. When you lose sight of any of these scales for any significant length of time you risk making routefinding errors.

I have noticed over the years that excellent leaders keep their heads up when mountaineering and ski touring and only look at their feet when they really have to. Their head often swivels from side to side and even turns all the way around to observe the group and memorize the terrain behind them so that routefinding on the way back will be easier should they have to retrace their steps. While scanning they maintain situational awareness of the environment and conditions as a whole. The new leader often focuses on where their feet and hands have to go next and they chronically lose the bigger picture perspective. The biggest picture includes not only the three "Ms" but also a total situational awareness of the mountain, conditions, people and weather.

Pacing

One of the most significant differences I notice between amateur and professional climbers is pacing. Experienced guides in particular have honed the art of pacing and it is one of the keys to guiding diverse groups of people across terrain that they may not always be at home in.

Young and inexperienced climbers often have a habit of running from place to place dripping sweat along the way and then stopping to gather their breath and reorient themselves before sprinting off again. They have a tendency to focus on one thing at a time. When moving that one thing is often speed. While running along they often concentrate totally on where their hands and feet are going to go next thus losing situational awareness and becoming increasingly unaware of where they are located on the Macro scale on the mountain.

The excellent leader often travels at a more measured pace. They indirectly use heart rate and respiratory rate as guides for when to speed up and slow down. One simple guideline for pacing on long days is that you should be able to walk and comfortably talk without undue shortness of breathe. Some leaders actually strike up a conversation with people in the group while traveling as a means of measuring whether people can easily maintain a conversation. A conversational pace also has the advantage of bringing the level of exertion down to where sweating is no longer excessive. This reduces fatigue and dehydration.

> *"A conversational pace is no sweat."*

This does not preclude the ability to speed up the pace to move through sections of known danger, and in fact it makes it easier to speed up for critical sections after which you slow down again once past the hazard.

I liken mountaineering to running a marathon. Pacing is a significant element in both. Pacing may even be more important in mountaineering. A typical time to run a marathon ranges between three and five hours. A typical time to complete a day climb in mountaineering may range between eight and eighteen hours. Just in terms of time this would make a mountaineering objective roughly somewhere from two to four times longer than a marathon.

In addition, marathons have a large support group spaced at intervals with fluids and the ability to assist you. In mountaineering you have to provide your own breaks and there is often no-one immediately available to assist you when things go wrong. If pacing is important in marathons, then it must be doubly important in mountaineering.

The excellent leader also uses pacing as a tool for group management. In poorly managed groups when the pace becomes overly fast the group tends to spread out with the faster group members

increasing their speed and the slower members decreasing theirs. The group is in fact not a group any longer and rather becomes a scattered collection of individuals. If problems materialize the ability of the group to assist is limited. If the entire group does not have routefinding skills the risk of losing someone increases. Morale for less experienced and less fit group members tends to be low. The pace of this type of group tends to be faster than desired and often leads to dehydration and excessive fatigue in less experienced members. The leader risks losing control of the group and the situation.

When an appropriate pace is being maintained the leader has an increasing ability to maintain situational awareness. The experienced leader keeps their head up a lot and scans the terrain above, below, left, right, in front and behind. The group tends to be fairly close together when the pace is suitable and the leader can easily see and hear everyone. The ability to inquire if the pace is too fast or too slow is easy when the group is all close by.

When the speed is too high the attention is turned to maintaining balance and footing which can capture a large amount of your attention. This attentional capture is an ingredient in losing situational awareness and a precursor to a human error. While moving at an appropriate pace less mental energy per step is being expended focusing on your footfalls and more can be used to monitor the group and assess the terrain ahead to facilitate route-finding.

Experienced leaders tend to look at their maps less, in part because they look at the terrain more than the speedster who focuses excessively on where their feet are going. Excessive speed tends to focus you on the Micro terrain and this allows you to lose sight of the Macro terrain and the big picture.

The excellent leader realizes that pacing has three major elements: cadence, stride length and rhythm. The cadence is simply how many foot steps are taken per minute. The stride length is how long each step is. The rhythm is the regularity of the steps.

Constantly speeding up and slowing down are taxing on a group to follow. You manage the pace and the group primarily by managing the first two elements. Going uphill the cadence slows and the stride length decreases. When back on level and even ground the stride length increases back to normal. On uneven ground it becomes increasingly difficult to manage a regular cadence, stride length and rhythm. Constantly monitoring the group becomes a key to correcting your pace appropriately.

As a generalization, recreational climbers often travel at a faster pace that an excellent mountain leader or guide would typically want to maintain. If your group is all highly experienced and super-fit, then by all means go faster, particularly on long difficult climbs where speed may be required. In club settings this is not always the case and a more-measured pace is often in order. Try to pace yourself and your group so that when you get home there is a little gas left in your tank to deal with unexpected situations or emergencies.

Step Kicking

When on snow, kicking steps presents an opportunity to control where each footstep a group makes will actually go. Good step kicking reduces the risk that the rest of the group will fall while poor step kicking may increase the risk of a slip and fall and furthermore may increase group fatigue. Balancing on small unstable steps is mentally and physically tiring. Climbing up bucket steps is simple and mindless.

An experienced leader will often have to work harder to kick good steps and thereby increase the security of the group. Excellent leaders have not lost the age-old art of cutting steps if necessary for sections. Of course, crampons can be employed as well on hard snow or ice conditions.

An excellent leader knows that there are two basic kinds of steps that can be used. These two types of steps are called inline steps and box steps (left and right respectively in the photo above). Inline steps, also called cross-over steps, have the feet placed one in front of the other. On traverses this gains altitude faster than box steps but every second step the climber is out of balance to a greater degree. In addition, inline steps are difficult to reverse if the steps must be followed on descent.

Box steps gain altitude slightly less quickly but have the climbers more in a balanced stance at all times. They are easier to follow on descent but slightly more expensive in energy. Many excellent leaders prefer using box steps with less experienced groups as they often provide better security. If the leader is unable to kick secure steps due to poor snow conditions and the consequences of a slip are serious the rope may have to be employed either in shortroping mode or perhaps by 5th class belayed climbing techniques. When steps are very secure an experienced group may dispense with the rope or perhaps shortrope instead of belaying.

Track Setting

When ski touring the art of track setting holds as much importance as step kicking (perhaps more). Using the terrain, keeping corners well rounded, avoiding kick turns and avoiding steep climbs are a few basic concepts. A good ski track looks like it belongs on the terrain rather than being a series of sharp steep zigzags or a track straight up a hill.

Good track setting along with pacing are the cornerstone of winter travel on skis. As with step kicking, the excellent leader should exert as much effort as necessary to create a secure, stable platform for ascending. As with step kicking, when good track setting alone fails to protect the group, techniques for technical terrain travel may be required.

Spotting (unroped)

When short, non-exposed, relatively innocuous technical steps are encountered the easiest way to reduce the risk associated with a short slip is to spot each climber.

The first climber up may model the ascent and each climber in turn will spot the person above them. The objective of spotting is not to catch a fall but rather to check the downward progress of the climber in such a way that injury is avoided. Best to learn about spotting at a climbing gym or introductory climbing course. In conjunction with spotting, the leader can model the best techniques for ascending a given piece of terrain.

As terrain becomes increasingly exposed, complicated or technically difficult the leader's arsenal of verbal and physical foundation skills may not provide adequate protection for the group.

The excellent leader now begins to employ a whole range of technical terrain skills that move along toward the roped climbing end of the continuum. The continuum carries on from spotting through using the rope in a passive fashion, then active short-roping and finally 5th class techniques with bombproof anchors and protection or specialized glacier travel techniques.

Technical Terrain Skills

Adding the rope

When the verbal and physical foundation skills plus modeling and spotting don't quite stack up to the task of protecting group members the rope may be employed. Recreational climbers often go straight from unroped scrambling to 5th class techniques. Guides and excellent leaders have the ability to interject a whole range of shortroping techniques between these two extremes. Even if the climbing is not difficult, the rope can also be used as a calming influence on those whose comfort zone is being pushed by a sense of exposure which an experienced climber might find pleasant. The sense of connectedness and control that may come from being attached by a rope to an excellent leader or guide can be a powerful psychological boost.

To begin, the group ties into the rope(s) and if the terrain is not yet difficult enough to justify 5th class climbing techniques the rope will be prepared for shortroping in the manner illustrated in the article "Shortroping 100."

Passive Shortroping

The group usually moves together in passive shortroping and as a rule the rope is kept short. Excess rope can be carried coiled around the bodies of the party members or part of it can be carried stowed in the pack. In any case the shortened ends of the rope must be properly tied into the harness and possibly backed up with a safety carabiner.

When the rope is used on low angle terrain that is technically simple, its role is less obvious. It is primarily to instill confidence, show direction of travel, check slips and in some cases it is just a quick and simple way to temporarily store the rope when traveling between more technical sections of a route. Anchors and belays are not used in passive short roping by definition. Your feet are your anchors. The leader commonly uses spotting, modeling, coaching and instruction foundation skills. Spotting is often employed on short steps but otherwise the group travels continuously. Typically, passive shortroping is used most often in 2nd and 3rd class terrain.

The leader may carry a few coils in the uphill hand with the downhill hand holding on to the rope going to the follower(s). This downhill hand is constantly feeling the progress of the follower(s) and is ready to check a slip at any moment. The leader uses observation and communication foundation skills discussed earlier and must constantly assess if the techniques being employed are appropriate. When traveling on lower angle uniform rock, non-glaciated snow slopes or bare summer ice the rope is often used in a passive fashion and a tied hand loop can be held by the leader to provide a bit of an advantage in holding a slip. If you are using both hands for holding on to the rock or terrain you are probably not passively shortroping. When a tied hand loop is used the leader rarely if ever carries loose coils in the uphill hand.

Spotting (roped)

As you move along with the rope being used passively you may encounter a step of slightly more technical terrain which requires the use of both of your hands to hold on to the terrain. The leader assesses the length and perceived difficulty of the section of terrain. A quick assessment of the probability of a slip or fall and the consequences should one occur are part of sizing up the situation.

Active Shortroping

As soon as members of a rope team begin moving independently (one at a time) up short sections of slightly more technical terrain, the rope is now more likely to be used in an active fashion. Beginning with hand belays (the simplest form of using the rope actively albeit only to check a slip) the rope plays a progressively more important role. Belays can vary from simple to complex and may or may not employ body braces and belays, terrain and/or anchors.

If the leader decides the terrain is easy enough to climb without the necessity for a fifth class style belay or a requirement for running protection (s)he may decide to simply scramble up the section. If both hands are being used to ascend then the group should likely not move together. The rope should be quickly stacked on the ground with the leader's rope coming from the top of the pile.

The leader may have to take coils off his/her body to be sure there is enough rope to get to the top of the section or step. Best to overestimate the amount of rope required by about a third as often the leader may have to move back along a ledge at the top of a step if it is decided that a belay for the followers is needed.

While the leader ascends, one follower may be asked to spot the leader as would be done in a bouldering situation. Other followers should be safely positioned out of way. Once the leader reaches the top of the step (s)he assesses what type of brace or belay will be required from above to safeguard the followers. This assessment is based on the known difficulty of the step and the perceived ability of the followers. Anything from a simple hand belay to a complex fifth class belay may be used.

Some of the possible types of body braces and belays will be discussed below. It is more likely that a solid belay will be required if the climbing is more technical, the leader is a smaller person, the consequences of a slip/fall are higher, the follower is heavy and/or there are more than one follower coming up from below at the same time.

On the way down any easy step the leader may use the rope actively and belay followers from above as they down-climb or the leader may quickly scramble down first and spot the follower(s) from below without using the rope. As before, it takes experience to properly assess which option should be used.

Suffice it to say that the less experienced leader or those who are physically smaller or lighter should use solid belays more often while the experienced leader (particularly if they are large and strong) may be able to use other simpler techniques. Body braces and belays are quick to employ but consequences may be disastrous should they fail. Incorporating terrain into the belays may help to retain speed and efficiency without compromising safety.

Above all, use common sense. If you are about to set out to climb a section of terrain which causes uncertainty in your mind, by all means use a belay rather than a simple spot if necessary. Get out your helmet, harness and rack of gear if you think you will need protection. Take off all the coils of rope if they will get in your way and the section looks like it will be long. There is no point in trying to impress your group with your climbing prowess if it will only lead to your own demise. You won't die from embarrassment but a unprotected fall could kill you!

Hand Belay

As soon as you begin using hand belays you are making the transition into the simplest form of active shortroping. After the leader surmounts a simple terrain step (s)he may decide that a hand belay is all that is required to safeguard a follower. Using a well-braced body position, the leader simply takes up the slack, keeping the rope tight to the follower at all times. Having the body turned sideways with the downhill foot well-braced and the body leaning away from the direction of any anticipated slip is the desired technique, as shown in the photo at left. It is worth restating that a less experienced leader or one who is physically smaller or lighter should use solid belays more often while the experienced leader (particularly if they are large and strong) may be able to use other techniques such as hand belays more often. Of the various braces and belays, the hand belay is obviously the weakest. If you think you are going to do more than check a slip, then perhaps techniques which can actually hold falls should be used.

In active shortroping, the leader is often not belayed and commonly uses body braces and belays to safeguard followers. The leader can still decide to use spotting, modeling, coaching and instruction foundation skills. The rope can still check slips but due to the nature of the increasingly steep or difficult terrain it also is now more likely to be used to catch actual falls for followers. Active shortroping is typically employed in the 3rd and 4th class range of difficulty. Expert leaders may also use active shortroping in easy 5th class terrain.

More stout body braces and belays are used working up from shoulder belays (weakest), through seated hip belays. Terrain belays and body belays that incorporate terrain and natural anchors may be used. Often fifth class belays employing climbing hardware may be used when necessary.

The rope length between climbers is variable. It is often shortened when moving together and lengthened for surmounting short technical sections or mini pitches. When traveling on simple ground between technical sections, some excess rope may be carried around the shoulders or in the pack as in passive shortroping with the remainder or excess commonly carried by the leader in coils in anticipation of the next technical section. The free downhill hand does not normally carry coils but rather holds the rope in order to check a slip if one occurs while moving over easier ground to the next more technical section. Deciding when it is safe to carry coils is an art. Each decision must be carefully taken.

Shoulder Belay

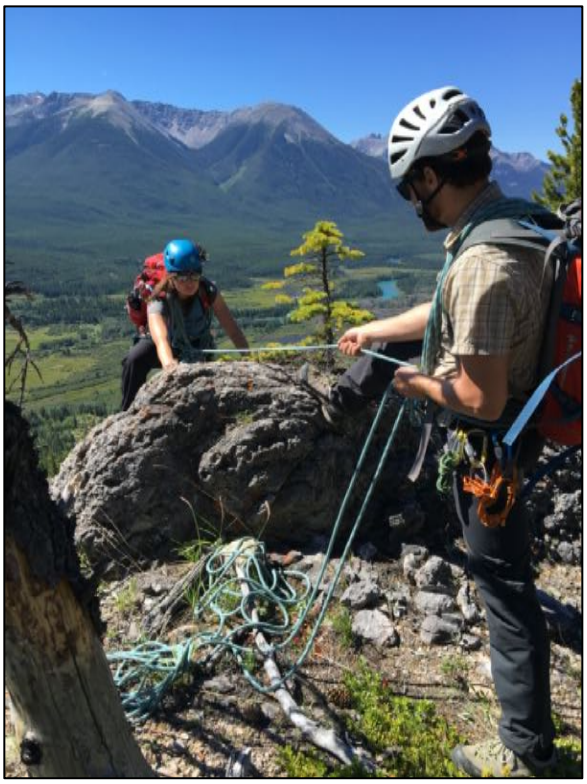
Second only to the simple hand belay this is one of the weakest body braces or belays known. It has largely been replaced by the standing hip belay. Despite that statement, it may be a useful tool when used properly by a very experienced guide. Using a well-braced body position, the leader takes the rope over the shoulder. The leader takes up the slack, keeping the rope tight to the follower at all times.

Having the body turned sideways with the downhill foot well-braced and the body leaning away from the direction of any anticipated slip is one desired technique, as shown in the photo at left.

Once again it should be remembered that a less experienced leader or one who is physically smaller or lighter should use solid belays more often while the very experienced leader (particularly if they are large and strong) may be able to use the shoulder belay on rare occasions. Anyone other than an expert leader or guide should likely shy away from the trying to use the shoulder belay and certainly if belaying more than one follower at once.

Some believe that the shoulder belay can lead to a false sense of security and I tend to agree. The most common failing of the shoulder belay is when the belayer leans forward to check the progress of the follower. In this position, the belayer can easily be pulled off his/her stance. In addition, the rope must run almost directly along the downhill leg. One mistake many people who have just learned the shoulder belay make is to use the shoulder belay when standing well back from the edge on a flat ledge. This invariably puts the rope in a position that it pulls out and away from the belayer rather than down along the leg. Failure of the belay can easily result. It is likely better in almost all situations to use a well-braced standing or sitting hip belay than a shoulder belay.

Standing Hip Belay



This technique has all but replaced the older and weaker shoulder belay. It is best employed when a good solid foot brace is available. It is a step above the shoulder belay in holding ability but only if well braced.

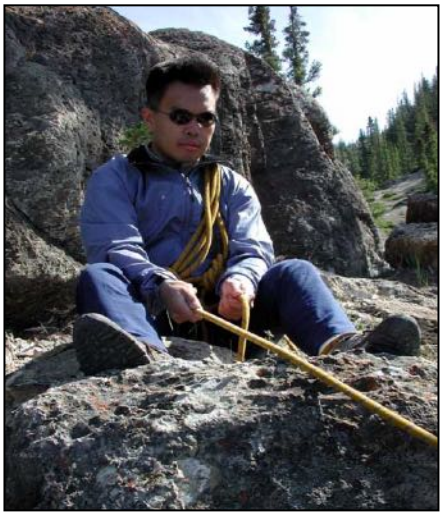
The rope is wrapped around the hips being sure to keep the rope running around the hip bones and not on the softer waist area. It is best not to lean forward when using this belay.

Similar to the shoulder belay, a mistake many people make is to use the standing hip belay when standing well back from the edge on a flat ledge. This invariably puts the rope in a position that it pulls out and away from the belayer rather than along the leg. Failure of the belay can easily result. It is likely better in almost all situations to use a well-braced sitting hip belay than a standing hip belay.

Sitting Hip Belay

One of the more reliable of the body belays when employed properly is the sitting hip belay. The rope runs around the body around the bony pelvic girdle and not around the softer abdominal tissues. The feet must be well braced and the buttocks should ideally be braced as well. In an ideal setting, the buttocks are below the level of the feet. If the anticipated fall could be significant, the belayer should be backed up by an anchor as well.

Despite the fact that in the days before mechanical belay devices almost all fifth class climbing was belayed with a body belay, it can still readily fail if misemployed. Recently in Jasper National Park a climber was belaying a partner who was rappelling. The belayer was not anchored. (As an aside he was also not wearing a helmet and had taken off his rock shoes.) When the rappeller slide quickly down the rope he launched his belayer clear over the edge of the 40 foot cliff. It would appear that this belay which can hold leader falls on fifth class terrain in ideal situations can also fail when not used well.



The rope going directly to the climber is held with what is called the guiding hand. The rope on the side opposite is called the braking hand. *The braking hand should never leave the rope*. Proper hand technique and body position while commonly taught on basic rock courses in the past is now usually only taught on more advanced courses for those intent on alpine climbing or group leadership.

Learn this technique from a guide or instructor and review it in texts such as "Mountaineering: The Freedom of the Hills". The hand motions that must be used with a hip belay are fundamental techniques that should be second nature with alpine climbers and group leaders of all levels in mountain terrain. Practice hip belays often in order to retain the required level of proficiency.

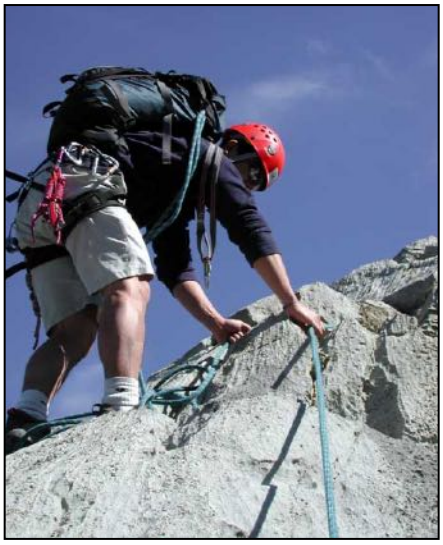
The sitting hip belay is also commonly employed in snow climbing in which case it is most often backed up with a snow anchor. Be aware that one of the basic principles of a hip belay is that it is a "dynamic" belay which becomes dynamic involuntarily. In other words, in a hard fall the rope WILL run through your hands and around your body. In a fall you can suffer ropes burns if you are not wearing gloves and your new Goretex™ jacket can get ruined.

The very reason the body belay is often used on snow is that snow anchors are notoriously weak. The belayer clips into the snow anchor, digs into the snow and braces well. The intention is that the hip belay will hold the entire fall and the rope will slip if forces become large, thus limiting the maximum force. The snow anchor in this instance is to ensure that the belayer does not get pulled off her/his stance.

Although previously quite common in ice climbing, the anchored hip belay has now been essentially replaced by classic mechanical belay devices in technical ice climbing. If used properly by an experienced person, it could still be used as a backup technique if a belay device gets lost or dropped.

Before we move away from body braces and belays, it is worth noting an old reference that provides excellent background into the holding power of the traditional techniques. "Belaying the Leader, An Omnibus on Climbing Safety", by Leonard, Wexler, Siri, et al, published by the Sierra Club in 1956 is an excellent but difficult to find historical work that tested many of the limits of what body braces and belays could hold.

Terrain and Natural Belays



There is a whole host of ways in which terrain can be incorporated into belaying schemes. All of the body braces and belays discussed above could easily incorporate terrain into their use. Simply by running the rope over terrain before it reaches the follower, friction can increase the holding power of the belayer.

If that is not enough it is often a simple task to run the belay rope over a spike or horn and belay directly off the terrain as demonstrated in the photo. Be sure the horn is solid and well attached. Make sure the rope cannot slip off when the rope comes taut.

Similarly, the rope may be run around large boulders and belayed directly using the friction around the rock. Proper hand motions must be used in which the braking hand never comes off the rope which safeguards the followers. Running the rope over rock edges is hard on the rope and a sling is often employed to go over the boulder or horn and the belay is then established using an Italian Hitch or appropriate device (see Direct Belays using Devices below).

In addition to spikes, horns and boulders, you may find natural anchors such as trees, pinches, chockstones and threads that can provide quick and ready belays without resorting to complex anchor configurations. Illustrations of these various natural anchors can be found in the article "DARN Solid & Timely Anchors" at http://www.rescuedynamics.ca.

If the terrain you have just ascended is not difficult, your partner is competent and you can get on the other side of a large feature such as a ridge you may consider belaying off your harness with an Italian hitch or belay device. The terrain provides additional friction and you would have to be pulled up and over the terrain for the belay to fail totally.

As a final reminder, if belaying off your harness and you are not anchored, it must be remembered that a less experienced leader or one who is physically smaller or lighter should use solid terrain or artificial 5th class belays more often. The experienced leader (particularly if they are large and strong) may be able to belay off the harness incorporating terrain more often.

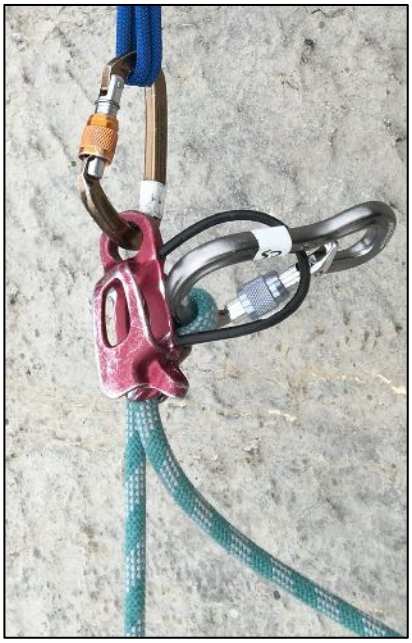
You should think carefully before trying to belay more than one follower at once. It would be a rude surprise to get slammed into the rock then hurled up and over the ridge only to fall past your followers. If this should occur be sure to yell "off belay" before you plummet to your doom.

Direct Anchor Belays using Devices

If there is any doubt in your mind about body braces and belays or terrain and natural belays then get out the hardware and build a proper artificial "DARN Solid" anchor to belay your followers.

The Italian hitch is a classic traditional method of belaying directly from an anchor. Providing that you have a suitable anchor it can be rapidly deployed. It can also be used to lower a person if required. The beauty of the Italian hitch is that no additional equipment other than a carabiner is required.

Sometime after the creation of a belay device called the *Sticht plate*™ , which was the precursor to the Black Diamond® ATC™ , New Alp® came to market with the *Plaquette Magique* or *Magic Plate* (shown at right). This device was a "one-way rope trap device" that allowed the rope to be easily pulled through but resisted the rope moving back down. It was embraced by many in the guiding profession.



Eventually a new generation of combined belay / rappel devices with one-way belay capabilities emerged that combined attributes of both a tube-style belay device like the ATC™ and a *plaquette*.

The most recent iterations often have an asymmetrical design with a V shaped groove on one side which facilitates use with a wide variety of rope diameters. Examples would include the Black Diamond® ATC Guide™ , Petzl® Reverso™ , DMM® Pivot™ and a good many more. A similar device that has exceptionally smooth operation and low friction when in-feeding the rope is the Mammut® Alpine Smart™ .

With the rise in popularity of this style of belay device it has become increasingly common for direct belays to employ some form of mechanical *assisted braking* device.

Two Common Errors Using Tube Style Devices

Plate or tube style belay devices similar to the Black Diamond ATC™ and Petzl Verso™ are examples of devices that should not be used to belay directly off the anchor to bring up a second. Use an Italian Hitch or an assisted-braking belay device instead in these cases.

Beware that some mechanical belay devices should not be used in a redirected belay through an anchor when the anchor is close to or adjacent to the belayer and the climber is coming up from below.

If you don't know precisely why these are errors, consult a guide or instructor who can show how easily a good mechanical device can fail if used incorrectly.

Short Pitching

Shortroping checks slips; belays catch falls; intermediate protection with belays catch leaders.

Much of the above discussion has focused on situations in which the leader essentially solos up a section of terrain and decides what belay to use for the followers based on the situation, climbers and terrain. What about when the leader doesn't feel up to the task of soloing a difficult looking section or short pitch?

Nowhere in this discussion has it been stated that the leader must solo everything. If the climbing looks daunting, then by all means get out the hardware and prepare to use all of your 5th class climbing bag of tricks whether it is on rock, snow or ice. Consider however that a given section of technical climbing may actually be quite short in some cases. It may be a waste of time to completely remove all of the coils which may have been carried in the pack or over the shoulder in shortroping fashion to this point. Perhaps the leader can simply deploy only half the rope and have the followers carry the remainder properly locked off in short-roping fashion or stowed in the pack.

If there is a series of short but difficult pitches this can allow the leader to have the full protection of belays, anchors and runners without having to manage 30 or 40 meters of dead rope when the pitches are only 10 or 20 meters long. Researching your intended route and getting some good beta on the nature of the climbing can allow for more informed decisions regarding whether the full rope length will be required or not.

5th Class Techniques

As the terrain becomes increasingly difficult, long and complex the wise leader naturally defaults to the standard collection of 5th class climbing techniques. Techniques for leading 5th class climbs are beyond the scope of this article and will not be discussed further.

A discussion of 5th class anchors can be found in the article "DARN Solid & Timely Anchors" mentioned earlier. With the exception of mentioning fixed point belays, this article will not cover 5th class techniques which are well covered in other references.

Remember that if the terrain should ease off and once again become less difficult, it may well be more expedient to switch back to shortroping until the terrain changes once again. Situational awareness and looking ahead are key to deciding how to use the rope next.

Belaying the Leader with "Fixed Point" Belays

Direct anchor belays have already been presented for belaying the follower or second climber. An additional tool in the arsenal of 5th class direct anchor belay techniques is the *fixed point belay* for belaying the leader. In this technique, the belay device is often attached directly to a single unquestionably strong piece of multi-directional protection (such as a modern, well-placed bolt, piton or ice screw). This piece is then backed up with one or more strong placements. The photo at right shows a typical fixed point configuration where the belayer is attached to the carabiner with a green gate and the leader will be belayed directly from the yellow carabiner.

This technique completely flies in the face of the concept of equalized anchors in that all of the load will initially come on a single strong piece with additional pieces being placed as a backup. The nuances of why this

technique is now considered acceptable and in certain situations even more desirable than traditional belays is well beyond the scope of this article and will be the subject of a future article focusing purely on fixed point belays.

Suffice it to say that fixed point belays may be desirable where the probability of holding long falls, high fall factor falls and factor 2 falls right off the belay or when no protection is possible for the leader.

Recent testing shows that forces on the anchor and protection pieces may be lower than with other conventional techniques in certain situations. This is contrary to conventional thinking up to this time.

The Italian Hitch functions well as the belay device in this application as it can accommodate both an upward and a downward pull. The photo at left shows a fixed point belay in use. Note that belay gloves are highly recommended!

This brief description is definitely not adequate to educate the reader in how this technique is used. The intention of mentioning this technique is to encourage climbers to find a reliable guide or instructor who is well-versed in a variety of modern fixed point and direct anchor belays to learn from.

Glacier Techniques

As with 5th class techniques, when the terrain changes the manner in which the rope is employed changes dramatically once the risk of hidden crevasses materializes. Shortroping across an unknown crevassed glacier, particularly in warm temperatures, early season or in shallow snowpack areas carries with it significant risks. Although guides may shortrope on some glaciated terrain, it is usually only at times when the conditions are very good and in areas in which the guide has very good local terrain knowledge. If you are an amateur leader it is best to switch from shortrope to glacier mode if you think hidden crevasses may be lurking. If you are unroped on a glacier, recall that unroped crevasse falls are commonly fatal.

In glacier travel the rope checks slips and arrests crevasse falls while the party most often moves continuously together. It is a little like passive shortroping except that the distance between

climbers on the rope is much farther to allow time and distance to arrest a crevasse fall. The full length of the rope is usually used with the exception of a length retained as a rescue coil at the front and/or back of the rope team. The leader is not usually belayed (although they can be for short dangerous sections).

If a party makes a transition from glaciated to non-glaciated easy terrain it is a fairly simple matter to switch to shortroping. Each person can simply take coils to the person in front of or behind them and properly lock off the coils. Then use the various techniques discussed above as appropriate, switching between passive rope, active rope, short pitching and 5th class techniques as required. Some alpine climbs may require use of all of these techniques in a single day with a glacier approach to begin and end the day. Glacier techniques and crevasse rescue are beyond the scope of this article and will not be discussed further.

Simultaneous Climbing

Although simultaneous climbing, sometimes called simul-climbing can be used on rock by expert climbers, it is more common to see simultaneous climbing on snow or ice slopes where the risk of slips on moderately steep terrain as well the risk of crevasses are both present at the same time. Sometimes groups move together simultaneously for speed.

In any case, parties using simultaneous climbing techniques should be more experienced as a slip or fall by any member of the party leads to the entire party falling, often large distances. Unlike short roping where slips are short, here the greater distance between climbers invariably leads to long falls. The rope catches the fall in a dynamic unanchored fashion.

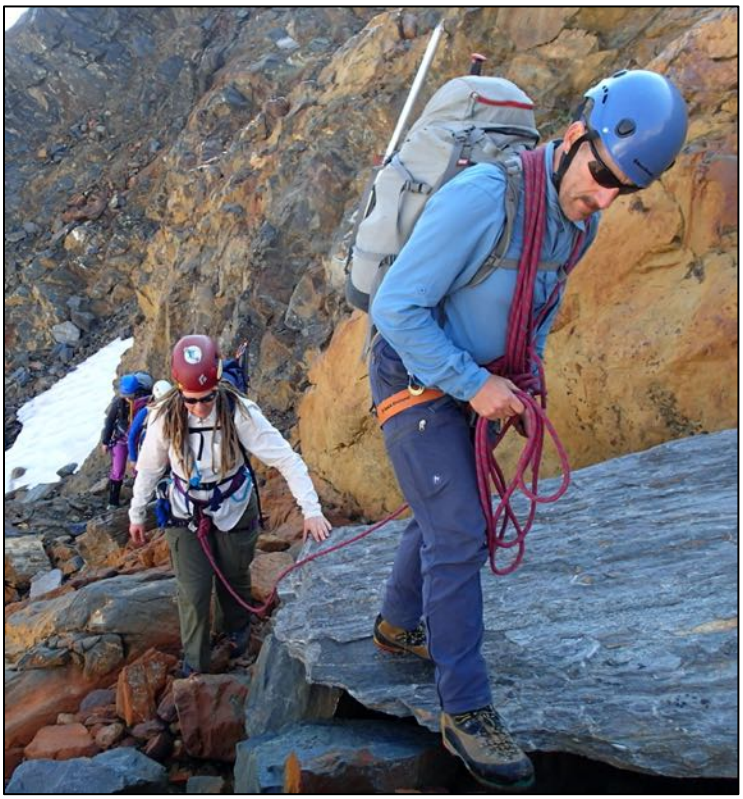
A little known fact with simul-climbing is that a fall of the second may create greater forces on pieces of protection than a fall of the leader. Thus in many situations the person leading the rope should likely be the less experienced partner in the rope team and the person following should be the more solid climber. That should rapidly lead to the realization that in simul-climbing *both* members of the rope team need to be competent leaders.

The rope is used full length with climbers usually spaced at the ends and at equal intervals along the rope, similar to glacier travel. The leader is typically not belayed but places running protection from which the entire group will be suspended in case of a slip or fall. A good policy is to try to have at least two pieces of protection clipped into the rope at all times. This may not always be feasible. Simultaneous climbing techniques are beyond the scope of this article and will not be discussed further.

Summary

This article has discussed shortroping as part of a continuum of skills that include foundation leadership skills together with specific rope skills that vary from place to place and time to time. Shortroping is not the only technique that a leader must use but an excellent mountain leader would be best served to have a good grounding in shortroping, particularly if leading less skilled partners is ever considered. The way in which two climbers will use the various skills discussed will vary

from person to person. Even the same person may use skills differently on exactly the same climb as conditions or group compositions varies from day to day.



It is best to look at shortroping as not replacing any existing tool in your kit but simply adding another set of tools for future use. Shortroping is probably the most advanced set of tools an advanced leader can possess and the most difficult to master.

Proper shortroping requires proper training, extensive practice and constant attention to changing situations. Situational awareness and situational leadership are key.

As a final caution, make no mistake, shortroping has inherent dangers. An unanticipated and unprotected slip can pull an entire party off a mountain.

When in doubt it may be most prudent to simply revert to 5th class climbing techniques where the leader places protection while on belay and the follower(s) have a top rope while being belayed from a DARN Solid anchor. Carefully analyze the probability of a slip or fall, consequences if one occurs and time exposed to a particular hazard before committing to a technique. Be willing to change your mind and the technique employed accordingly.

About the Author

Cyril Shokoples is an internationally certified Mountain Guide and Past-President of the Association of Canadian Mountain Guides. He has been a member of the Alpine Club of Canada and Edmonton Section since 1975 and became a "Senior Member" in 1979. He received the Silver Rope award in 1988 and the Distinguished Service Award in 2002. In 2005, the Edmonton Section of the ACC awarded Cyril with the George Stefanick Legacy Award (only the second time this award was presented). In 2012 Cyril was inducted as an Honorary (Life) Member of the ACC.

Cyril also received the Distinguished Service Award from the Association of Canadian Mountain Guides in 2003.

Cyril has been teaching mountain leadership for well over a quarter century and he continues to broaden his background and skills into many related areas of safety and rescue education. He trained Emergency Medical Technicians for over a decade and is a life member of the National Association for Search and Rescue (US). He has been training the Canadian military Search and Rescue Technicians in mountain climbing and mountain rescue for over thirty years. He created the Parks Emergency Responder program for National Park Wardens and taught that program across Canada for almost two decades.

Cyril is a PADI Divemaster and Open Water Scuba Instructor. He is also a professional member of the Canadian Avalanche Association, a CSIA Ski Instructor and a licenced Advanced Amateur Radio Operator. He has taught courses and seminars in BC, Alberta, Saskatchewan, Manitoba, Ontario, Quebec, The Yukon, North West Territories and Nunavut.

Cyril's climbing and diving exploits have taken him across North America and Europe to New Zealand, Hawaii and the Caribbean. He currently resides in Alberta, Canada and is the proprietor of the firm Rescue Dynamics, which is involved in climbing, rescue and safety instruction, as well as mountain guiding.

Further information on courses as well as additional copies of the many technical notes he has written can be obtained directly from Rescue Dynamics. http://www.rescuedynamics.ca